

The listing of claims is proposed to replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-37. (cancelled)

38. (Currently amended) A method for managing resource usage of code downloaded to a computer system, the method comprising:

for each code downloaded to the computer system, associating a resource indicator with all threads that are executed directly by the downloaded code and all threads that are initiated by the downloaded code, wherein all of the threads that are executed directly by the downloaded code and all threads that are initiated by the downloaded code are defined as a set of related code; and

updating the resource indicator when the related code ~~increases or decreases~~ changes its actual collective resource usage of ~~the~~ a particular resource so that the resource indicator only tracks actual resource usage of the related code.

39. (Previously presented) A method as recited in claim 38 wherein the resource indicator's amount represents an absolute value of the resource usage.

40. (Previously presented) A method as recited in claim 38 wherein the resource indicator's amount represents a proportional value of the resource usage.

41. (Previously presented) A method as recited in claim 38 further comprising:

associating the related code with each resource portion of the particular resource that is allocated for the related code; and

disassociating the related code with each resource portion of the particular resource that is deallocated for the related code,

wherein the resource indicator is decreased when a resource portion is deallocated and increased when a resource portion is allocated for the related code.

42. (Previously presented) A method as recited in claim 41 further comprising:

allocating the particular resource to the related code when the resource indicator is below a maximum predetermined threshold; and

indicating an error and not allocating the particular resource when the resource indicator is above the maximum predetermined threshold.

43. (Previously presented) A method as recited in claim 42 wherein the error is indicated by throwing an out_of_memory exception.

44. (Previously presented) A method as recited in claim 41 wherein the related code is disassociated through a garbage collection procedure.

45. (Previously presented) A method as recited in claim 38 wherein the particular resource is selected from a group consisting of memory usage, open file usage, open socket usage, and monitor usage.

46. (Previously presented) A method as recited in claim 45 wherein the resource indicator indicates a percentage of the particular resource that is utilized by the related code.

47. (Previously presented) A method as recited in claim 45 further comprising:

associating a plurality of thresholds with the particular resource and the related code; and
notifying a registered resource callback when the amount of resource usage of the particular resource by the related code exceeds a first one of the thresholds.

48. (Previously presented) A method as recited in claim 47 further comprising notifying a registered resource callback when the amount of resource usage of the particular resource by the related code drops below a second one of the thresholds that has a different value than the first threshold.

49. (Previously presented) A method as recited in claim 47 further comprising notifying a registered resource callback when the amount of resource usage of the particular resource by the related code drops below the first threshold.

50. (Previously presented) A method as recited in claim 38 wherein the particular resource is CPU usage or network usage.

51. (Previously presented) A method as recited in claim 50 further comprising:
associating a threshold with the particular resource and the related code; and
indicating that the related code's priority for CPU usage be decreased when the amount of resource usage of the particular resource by the related code exceeds the threshold.

52. (Previously presented) A method as recited in claim 51 further comprising:
associating a second threshold with the particular resource and the related code; and
indicating that the related code's priority for CPU usage be boosted when the amount of resource usage of the particular resource by the related code drops below the second threshold.

53. (Previously presented) A method as recited in claim 38 wherein the related code is configured to be executed on behalf of an applet in the form of threads.

54. (Previously presented) A method as recited in claim 38 further comprising:

associating a plurality of resource indicators with the related code that each indicates an amount of resource usage of a plurality of resources by the related code; and

updating a selected resource indicator when the related code increases or decreases its collective resource usage of the associated resource.

55. (Previously presented) A method as recited in claim 54 wherein the resources include memory usage, CPU usage, and network usage.

56. (Previously presented) A method as recited in claim 55 wherein the resources further include open file usage and open socket usage.

57. (Previously presented) A method as recited in claim 38, further comprising determining which threads are to be defined as the set of related code based on which threads are assigned to a same protection domain.

58. (Previously presented) A method as recited in claim 38, further comprising aborting the threads of the related code when their resource indicator exceeds a maximum level.

59. (Previously presented) A method as recited in claim 38, wherein the computer system is integrated with a set top box or a navigational system.

60. (Currently amended) A computer readable medium containing computer codes for managing resource usage of code downloaded to a computer system, the computer readable medium comprising:

computer code for associating for each code downloaded to the computer system a resource indicator with all threads that are executed directly by the downloaded code and all threads that are initiated by the downloaded code, wherein all of the threads that are executed directly by the downloaded code and all threads that are initiated by the downloaded code are defined as a set of related code; and

computer code for updating the resource indicator when the related code ~~increases or decreases~~ changes its actual collective resource usage of ~~the~~ a particular resource so that the resource indicator only tracks actual resource usage of the related code.

61. (Previously presented) A computer readable medium as recited in claim 60 further comprising:

computer code for associating the related code with each resource portion of the particular resource that is allocated for the related code; and

computer code for disassociating the related code with each resource portion of the particular resource that is deallocated for the related code,

wherein the resource indicator is decreased when a resource portion is deallocated and increased when a resource portion is allocated for the related code.

62. (Previously presented) A computer readable medium as recited in claim 61 further comprising:

computer code for allocating the particular resource to the related code when the resource indicator is below a maximum predetermined threshold; and

computer code for indicating an error and not allocating the particular resource when the resource indicator is above the maximum predetermined threshold.

63. (Previously presented) A computer readable medium as recited in claim 60 wherein the particular resource is selected from a group consisting of memory, open files, open sockets, and monitors.

64. (Previously presented) A computer readable medium as recited in claim 63 further comprising:

computer code for associating a plurality of thresholds with the particular resource and the related code; and

computer code for notifying a registered resource callback when the amount of resource usage of the particular resource by the related code exceeds a first one of the thresholds.

65. (Previously presented) A computer readable medium as recited in claim 63 further comprising computer code for notifying a registered resource callback when the amount of resource usage of the particular resource by the related code drops below a second one of the thresholds that has a different value than the first threshold.

66. (Previously presented) A computer readable medium as recited in claim 60 wherein the particular resource is CPU usage or network usage.

67. (Previously presented) A computer readable medium as recited in claim 66 further comprising:

computer code for associating a threshold with the particular resource and the related code; and

computer code for indicating that the related code's priority for CPU usage be decreased when the amount of resource usage of the particular resource by the related code exceeds the threshold.

68. (Previously presented) A computer readable medium as recited in claim 67 further comprising:

computer code for associating a second threshold with the particular resource and the related code; and

computer code for indicating that the related code's priority for CPU usage be boosted when the amount of resource usage of the particular resource by the related code drops below the second threshold.

69. (Previously presented) A computer readable medium as recited in claim 60 wherein the related code is configured to be executed on behalf of an applet in the form of threads.

70. (Previously presented) A computer readable medium as recited in claim 60, further comprising computer code for determining which threads are to be defined as the set of related code based on which threads are assigned to a same protection domain.

71. (Previously presented) A computer readable medium as recited in claim 60, further comprising computer code for aborting the threads of the related code when their resource indicator exceeds a maximum level.

72. (Previously presented) A computer readable medium as recited in claim 60, wherein the computer system is integrated with a set top box or a navigational system.